

Christopher S. Boxe

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Education

Ph.D. Environmental Science and Engineering, **Minor** in Geology, California Institute of Technology Jun. 2005
Dissertation Title: Nitrate Photochemistry and Interrelated Chemical Phenomena in Ice
Thesis Advisor: Professor Michael Hoffmann

M.S. Environmental Science and Engineering, California Institute of Technology Jun. 2002

M.S. Planetary Science, California Institute of Technology Jun. 2001

B.S. Chemistry, **Minor** in Math, *magna cum laude* Morehouse College May 1999

Phi Beta Kappa Honors, Morehouse College Mar. 1998

Experience

Jet Propulsion Laboratory Research Scientist, NASA-JPL Oct. 2008 – present

Program & Outreach Committee, Pasadena Armory Center for the Arts Jan. 2009 – present

African American Resource Team (AART), Jet Propulsion Laboratory Nov. 2008 – present

Jet Propulsion Laboratory Postdoctoral Scholar, NASA-JPL Jan. 2008 – Oct. 2008

Jet Propulsion Laboratory Speakers Bureau, NASA-JPL 2008 – present

Caltech Consulting Club Volunteer 2008 – present

Arctica Research Project for Urban Youth, NASA-JPL 2007 – present

Oak Ridge Associated Universities/ NASA Postdoctoral Program Fellow, NASA-JPL 2006 – 2008

Program Assistant, Caltech MURF (Minority Undergraduate Research Fellows) 2001 – 2005

Environmental Science and Engineering Graduate Research Assistant, Caltech 2001 – 2005

Instructor, Caltech YESS (Young Engineering and Science Scholars)	2001 –2002
Geology and Planetary Science Graduate Research Assistant, Caltech	1999 – 2001
Voluntary Teaching at Los Angeles High Schools	2006
Graduate Student Recruiter, Caltech/NASA-JPL	1999 – present
Research Assistant, Morehouse College	1997 –199
NASA-McNair Research Assistant, Morehouse College	1997 – 1999

Publications (in submission , in press, and accepted)

Novel Chemistry in the Atmosphere of Mars

C. S. Boxe,* J. S. Francisco,* S. P. Sander, Y. L. Yung, R.-L. Shia, and A. Saiz-Lopez
Nature, in submission.

Aura Satellite Observations and GEOS-Chem Model Simulations of the December 2006 Australian Fires

M. Luo, C. S. Boxe, J. Jiang, R. Nassar, J. Logan, and N. Livesey
Remote Sensing of Environment, Volume 114, 2853-2862 (2010).

Validation of Northern Latitude Tropospheric Emission Spectrometer Stare Ozone Profiles with ARC-IONS Sondes during ARCTAS

C. S. Boxe, *et al.*,
Atmospheric Chemistry and Physics, Volume 10, 9901-9914 (2010).

The effect of the Novel $\text{HNO}_3(\text{g})$ Production Channel at South Pole, Antarctica

C. S. Boxe, P. Hamer, W. Ford, M. Hoffmann, J. Worden, and K. Bowman,
Environmental Research Letters, in press.

Investigating the Photo-oxidative Production of HCHO in the Snowpack at the South Pole, Antarctica

P. D. Hamer, D. E. Shallcross, A. Yabushita, and C. S. Boxe
Environmental Chemistry, in press.

Validation of Northern Latitude Tropospheric Emission Spectrometer Stare Ozone Profiles with ARC-IONS Sondes during ARCTAS

C. S. Boxe, *et al.*,
Atmospheric Chemistry and Physics-Discussion, Volume 9, 27267-27301 (2009).

Photochemical Laboratory Studies of Organic and Inorganic Molecules on Ice and Snow Crystals Relevant to Polar Chemistry

C. S. Boxe,* M. I. Guzman,* A. Grannas, M. R. Hoffmann, P. B. Shepson, W. Simpson, and R. Honrath
Chemical Reviews, proposal accepted-manuscript in submission.

Thin Liquid Films on Mars and Its Implications for Nitrogen Fixation

C. S. Boxe,* K. P. Hand,* K. Nealson, Y. L. Yung, M. Allen, S. Sander, and C. Sotin
International Journal of Astrobiology, in submission.

Thin Liquid Films on Mars: implications for life

C. S. Boxe,* K. P. Hand,* K. Nealson, A. Saiz-Lopez, M. I. Guzman, A. S. Yen, Y. L. Yung, M. Allen, S. Sander, and C. Sotin
International Journal of Astrobiology, in submission.

Influence of thin liquid layers on polar ice chemistry: implications for Earth and planetary science

C. S. Boxe* and A. Saiz-Lopez*

Polar Science, Volume 3, 73-81, (2009).

A mechanism for biologically-induced iodine emissions from sea-ice

A. Saiz-Lopez*, C. S. Boxe*, R. Sander, and L. Carpenter

Atmospheric Chemistry and Physics-Discussions, in press.

Multiphase modeling of nitrate photochemistry in the quasi-liquid layer (QLL): implications for NO_x release from the Arctic and coastal Antarctic snowpack

C. S. Boxe* and A. Saiz-Lopez*

Atmospheric Chemistry and Physics, Volume 8, 4855-4864 (2008).

Multiphase modeling of nitrate photochemistry in the quasi-liquid layer (QLL): implications for NO_x release from the Arctic and coastal Antarctic snowpack

C. S. Boxe* and A. Saiz-Lopez*

Atmospheric Chemistry and Physics-Discussions, Volume 8, 6009-6034 (2008).

A mechanism for biologically-induced iodine emissions from sea-ice

A. Saiz-Lopez* and C. S. Boxe*

Atmospheric Chemistry and Physics-Discussions, Volume 8, 2953-2976 (2008).

An overview of snow photochemistry: evidence, mechanisms and impacts

A. M. Grannas, A. E. Jones, J. Dibb, M. Ammann, C. Anastasio, H. J. Beine, M. Bergin, J. Bottenheim, C. S. Boxe, et al.,

Atmospheric Chemistry and Physics, Volume 7, 4165--4283 (2007).

A Review of Snow Photochemistry: evidence, mechanisms, and impacts

A. M. Grannas, A. E. Jones, J. Dibb, M. Ammann, C. Anastasio, H. J. Beine, M. Bergin, J. Bottenheim, C. S. Boxe, et al.,

Atmospheric Chemistry and Physics-Discussions, Volume 7, 4329-4373 (2007).

Grain Sizes and Surface Areas, and Porosities of Vapor-Deposited H₂O Ices Used to Simulate Planetary Icy Surfaces

C. S. Boxe, Leu, M. T., Bodsgard, B. R., and W. Smythe

Journal of Colloid and Interface Science, Volume 309, Issue 2, Pages 412-418, MAY 15 (2007).

Acidity of Frozen Electrolyte Solutions

C. Robinson, C. S. Boxe, M. I. Guzman, A. J. Colussi, and M. R. Hoffmann

Journal of Physical Chemistry B, 110 (15): 7613-7616 APR 20 (2006).

Kinetics of Gaseous NO and NO₂ Evolution from Illuminated Frozen Nitrate Solutions

C. S. Boxe, A. J. Colussi, M. R. Hoffmann, I. Perez, J. G. Murphy, and R. C. Cohen

Journal of Physical Chemistry A, 110 (10): 3578-3583 MAR 16 (2006).

Photochemical Production and Release of Gaseous NO₂ from Nitrate-doped Water Ice

C. S. Boxe, A. J. Colussi, M. R. Hoffmann, J. Murphy, P. Wooldridge, T. Betram, and R. C. Cohen

Journal of Physical Chemistry A, 109 (38): 8520-8525 SEP 29 (2005).

Oxygen Isotopes Fractionation in the Photodecomposition of Nitrate in Water and Ice

J. McCabe, C. S. Boxe, A. J. Colussi, M. R. Hoffmann, and M. Thiemens.

Journal of Geophysical Research-Atmospheres, Vol. 110, No. D15, D15310, 10.1029/2004JD005484, 13 August (2005).

Multiscale Ice Fluidity in NO_x Photodesorption from Frozen Nitrate Solutions

C. S. Boxe, A. J. Colussi, M. R. Hoffmann, D. Tan, J. Mastromarino, A. T. Case, S. T. Sandholm, and D. D. Davis

Journal of Physical Chemistry A, 107 (51): 11409-11413 DEC 25 (2003).

Monotonic Increase of Nitrite Yields in the Photolysis of Nitrate in Ice and Water between 238 and 294 K

Y. Dubowski, A. J. Colussi, C. S. Boxe, and M. R. Hoffmann

Journal of Physical Chemistry A, 106 (30): 6967-6971 AUG 1 (2002).

Keeping Mars Warm with New Super Greenhouse Gases

M. F. Gerstell, J. S. Francisco, Y. L. Yung, C. S. Boxe, and E. T. Aaltonee

Proceedings of the National Academy of Sciences of the United States of America, 98 (5): 2154-2157 FEB 27 (2001).

Publications (in preparation)

Reversible H₂ Storage in Natural Media

T. Pascal, C. S. Boxe, and W. A. Goddard

Science, in preparation.

A summertime climatology of tropospheric ozone profiles over Houston, Texas (1994-2009)

G. A. Morris, C. S. Boxe, V. Thouret, A. M. Thompson, B. Lefer, D. Fu, B. Herman, G. Osterman, and B. Rappengluck

Atmospheric Chemistry and Physics, in preparation.

The Effect of the Novel HNO₃(g) and OH+HONO Production Channels over the U.S. using WRF-Chem

L. Wu, H. Su, J. Jiang, and C. S. Boxe

Atmospheric Pollution Research, in preparation.

The Effect of the Novel HNO₃(g) Production Channel over the U.S. using WRF-Chem

L. Wu, H. Su, J. Jiang, and C. S. Boxe

Atmospheric Pollution Research, in preparation.

The Effect of the Novel OH+HONO Production Channel over the U.S. using WRF-Chem

L. Wu, H. Su, J. Jiang, and C. S. Boxe

Atmospheric Pollution Research, in preparation.

New Reaction Pathways Affecting Atmospheric CO₂ on Mars via the Pathway Analysis Program (PAP)

J. Stock, J. L. Grenfell, Y. L. Yung, and C. S. Boxe

Nature Geoscience, in preparation.

Low Temperature UV-VIS Spectral Analysis of Benzene, Ethyl Benzene and Toluene

C. S. Boxe,* R. Hodyss,* P. Johnson, L. Lane, and I. Kanik
Journal of Physical Chemistry A, in preparation.

Tropospheric Emission Spectrometer Version 4 Temperature Retrievals Compared to Aircraft and Sondes

R. L. Herman, C. S. Boxe, *et al.*,
Journal of Geophysical Research, in preparation.

Invited Talks, Conference Papers, Poster Presentations, & Outreach Activities

C. S. Boxe, Pasadena Armory Center for the Arts Program and Outreach Committee Site Visit, Milagro Charter Elementary School, May 4th, 2010.

C. S. Boxe, “Validation of TES O₃ satellite data: implications for modeling with the Weather Research & Forecasting Model (WRF) with coupled chemistry (WRF-Chem),” April 30th, 2010, MIT, Boston, Massachusetts.

C. S. Boxe, “Validation of TES O₃ satellite data: implications for modeling with the Weather Research & Forecasting Model (WRF) with coupled chemistry (WRF-Chem),” April 22nd-23rd, 2010, UCSD-SIO, La Jolla, CA.

C. S. Boxe, Volunteer for NASA-JPL Climate Science Day, Pasadena Convention Center, March 26th-27th, 2010.

C. S. Boxe, “Validation of TES O₃ satellite data: implications for modeling with the Weather Research & Forecasting Model (WRF) with coupled chemistry (WRF-Chem),” March 17th-19th, 2010, Johns Hopkins University, Baltimore, MD.

C. S. Boxe, “Validation of TES O₃ satellite data: implications for modeling with the Weather Research & Forecasting Model (WRF) with coupled chemistry (WRF-Chem),” March 11th, 2010, University of Southern California, Los Angeles, CA.

C. S. Boxe, “Validation of TES O₃ satellite data: implications for modeling with the Weather Research & Forecasting Model (WRF) with coupled chemistry (WRF-Chem),” February 23th-26th, 2010, Washington University, St. Louis, MO.

C. S. Boxe, Basic WRF Tutorial, January 25th-29th, 2010, NCAR Foothills Laboratory, Boulder, CO.

C. S. Boxe, “The Atmosphere of Mars,” Imagine Mars Workshop, Houston, Texas, January, 27th, 2010.

C. S. Boxe, Donated funds to purchase telescopes for outreach space technology trip in Tanzania, Africa, December 27th, 2009.

C. S. Boxe, “Validation of northern latitude Tropospheric Emission Spectrometer stare ozone profiles with ARC-IONS sondes during ARCTAS Paper,” American Geophysical Union, San Francisco, California, Fall Meeting 2009, oral presentation.

C. S. Boxe, “Interpretation of Aura Satellite Observations of CO and Aerosol Index related to the December 2006 Australia Fires,” American Geophysical Union, San Francisco, California, Fall Meeting 2009, oral presentation.

C. S. Boxe, Jose Medrano, and Anthony Sherrill, “Life at NASA-JPL,” Huntington Park College-Ready Academy, Huntington Park, CA, November 19th, 2009.

C. S. Boxe, “The Future Direction for JPL’s African American Resource Team (AART),” NASA-JPL, November 10th, 2009.

P. Johnson, R. Hodyss, C. S. Boxe, L. Lane, and I. Kanik, “Photolysis of Simulated Outer Planetary Icy Surfaces,” NASA-JPL Research and Technology Development (R&TD)/Director Research Development Fund (DRDF), and Strategic University Research Partnership (SURP), Earth and Space Science Division,” November 10th, 2009.

C. S. Boxe, “Thin Liquid Films on Mars: implications for life,” USC Department of Earth Sciences Department Seminar, November 2nd, 2009.

C. S. Boxe, “Thin Liquid Films on Mars: implications for life,” Gordon-CenSSIS/ALERT Research & Industrial Colloboration Conference (RICC), October 27th-28th, 2009.

C. S. Boxe, Northeastern ADVANCE “Interdisciplinary Networking in Sensing and Imaging Systems” A Workshop to Promote Diversity and Gender Balance for Prospective Faculty, October 25th-26th, 2009.

M. Barth, J. Lee, C. Boxe, J. Worden, and A. Hodzic, “Modeling Study of Thunderstorm Effects on the Upper Troposphere During the Early Stages of the 2006 North American Monsoon,” The Extra-tropical UTLS: Observations, concepts & future directions, Community workshop at NCAR, Boulder, CO, October 19th-22nd, 2009.

C. S. Boxe, J. Neu, and J. Worden, “Global Effects of the Novel HNO₃(g) Production Channel and the Effects of Scavenging Constrained by A-Train Satellite Data,” The Extra-tropical UTLS: Observations, concepts & future directions, Community workshop at NCAR, Boulder, CO, October 19th-22nd, 2009.

C. S. Boxe, Annual Donator for extracurricular sports activities for select students in Pasadena, California.

C. S. Boxe, Annual Donator for the tuition of high school students in Kingston, Jamaica.

C. S. Boxe, Annual Donator to Classical KUSC 91.5 fm radio broadcast service of the University of Southern California.

C. S. Boxe, Earth Scientist Volunteer at JPL’s Open House, Education Office, May 2nd-3rd, 2009.

C. S. Boxe, “The Role of Thin Liquid Films and Their Implications,” Guest Lecture for Geobiology/Astrobiology course at USC’s Earth Science Department, April 28th, 2009.

C. S. Boxe donated honorarium received from guest speaker for Earth Day at Citrus College’s Center For Initiative (CFI), “Global Warming: Fact, Myth, or Hypothesis,” Glendora, CA April 22nd, 2009 to Armory’s Center for the Arts City of Pasadena Greening the Earth Day & the Armory’s Family Festival, April 25th, 2009.

C. S. Boxe (with honorarium), Invited guest speaker for Earth Day at Citrus College’s Center For Initiative (CFI), “Global Warming: Fact, Myth, or Hypothesis,” Glendora, CA April 22nd, 2009.

C. S. Boxe and C. Paterson, Invited guest speakers Arts Center Open Science Center Salon, “Up in the Air: constraints for life on Mars sought through atmospheric models and thermodynamic calculations,” at University of California, Broad Art Science Center and Lab, Los Angeles CA, April 17th, 2009.

C. S. Boxe, Invited guest speaker for “Career and Life Planning” at Citrus College, Citrus College, Glendora, CA, March 19th, 2009.

C. Paterson and C. S. Boxe, “Life as We Know It?” Birth/Day: Origins, Temporality, Hybridity – ‘How does newness come into the world? How is it born? Of what fusions, translations, conjoining is it made?’ Salman Rushdie, The Satanic Verses, Visual Studies Conference, University of California, Irvine, CA, March 6-7th, 2009.

C. S. Boxe, “Validation of Tropospheric Emission Spectrometer (TES) nadir stare ozone profiles using ozonesonde measurements during Arctic Research on the Composition of the Troposphere from Aircraft and Satellites (ARCTAS),” 26th Informal Symposium on Kinetic and Photochemical Processes in the Atmosphere, University of California, Riverside, CA, March 5th, 2009.

C. S. Boxe, “Validation of Tropospheric Emission Spectrometer (TES) nadir stare ozone profiles using ozonesonde measurements during Arctic Research on the Composition of the Troposphere from Aircraft and Satellites (ARCTAS),” TES Science Team Meeting, The University Corporation for Atmospheric Research (UCAR) – National Center for Atmospheric Research (NCAR) Foothills Laboratory, February 23-25th, 2009.

C. S. Boxe, “Applications of Ice Photochemistry to Earth Science Problems,” Ice Labs Workshop, NASA-JPL, February 2nd, 2009.

C. S. Boxe, “Validation of Tropospheric Emission Spectrometer (TES) nadir stare ozone profiles using ozonesonde measurements during Arctic Research on the Composition of the Troposphere from Aircraft and Satellites (ARCTAS),” ARC-IONS Data Workshop, Wycliffe College, University of Toronto, January 7-8th, 2009.

C. S. Boxe, “Chemistry of Ice and Snow: implications for planetary science,” Harvard’s Engineering and Applied Sciences Atmospheric Sciences Seminar, October 24th, 2008.

C. S. Boxe, “Academic Career Path,” Morehouse College’s Ronald E. McNair Scholars, Atlanta, Georgia, October 7th, 2008.

C. S. Boxe, “Heterogeneous Snow Chemistry and its Relation to finding life on Mars,” Morehouse College’s Chemistry Department, Atlanta, Georgia, October 7th, 2008.

C. S. Boxe, “Academic Career Path – Self-Empowerment Through Research,” Keynote Speaker for Morehouse College’s 3rd Annual Research – Enrichment Awards, Atlanta, Georgia, October 6th, 2008.

C. S. Boxe, “Heterogeneous Snow Chemistry,” Morehouse College’s Math Department, Atlanta, Georgia, October 6th, 2008.

C. S. Boxe, “Academic Career Path,” Morehouse College’s Chemistry Department, Atlanta, Georgia, October 6th, 2008.

C. S. Boxe, “Academic Career Path,” Morehouse College’s Biology Department, Atlanta, Georgia, October 6th, 2008.

C. S. Boxe, “Climate Change: Fact or Fiction?” Camp Mariposa Girl Scouts, Altadena, California, September 30th, 2008.

C. S. Boxe, “Academic Career Path,” The Scientific Empowerment Movement (SEM), UCLA, Los Angeles, California, September 27th, 2008.

C. S. Boxe, “The Academic Career Path,” Mt. San Antonio College’s Inland Valley Black College Summit, Industry, California, September 13th, 2008.

C. S. Boxe, A. Saiz-Lopez, A. S. Yen, M. I. Guzman, Y. L. Yung, M. Allen, C. Sotin, Heterogeneous Photochemistry on Mars’s Surface,” Earth and Space Science Division, Jet Propulsion Laboratory, NASA-JPL’s Postdoctoral Research Day, August 26th, 2008.

C. S. Boxe, “Possible Environments for Life on Mars,” NASA-JPL’s Minority Education Initiatives, June 25th, 2008.

C. S. Boxe, Volunteer at the Child Educational Center’s 19th Annual Wine Tasting Benefit and Auction, Avery House, Caltech, June 14th, 2008.

C. S. Boxe, “Ask a Scientist Guy,” Volunteer at JPL’s Open House, Education Office, May 3rd-4th, 2008.

C. S. Boxe, Arctica Research Project for Urban Youth, NASA-JPL, “Creating an Ice Rendezvous,” MOCA/LACMA Allan Kaprow Fluids Reinvention Site, MacArthur Park Lakeside, April 27th, 2008.

C. S. Boxe, “Global Warming: fact or fiction,” Keynote Speaker at Earth Day, Citrus College, Glendora, CA, April 22nd, 2008.

Saiz-Lopez, A., Boxe, C. S., Sander, S. P., Chance, K., Kurosu, T. P., Liu, X., Mahajan, A., Plane, J..M. C. "Iodine chemistry in the polar boundary layer,” EGU General Assembly 2008, AS3.14, lecture room Lecture Room 1 on Thursday, 17 April 2008, 13:30.

C. S. Boxe, “The Life Journey of an Atmospheric Scientist,” Careers in Science Night, Garfield Elementary School, Alhambra, CA, April 16th, 2008.

C. S. Boxe , “Multiphase Modeling of Nitrate Photochemistry in the Polar Regions,” Duke’s Nicholas School of the Environment and Earth Sciences Earth and Ocean Sciences Division, March 18th, 2008.

C. S. Boxe and A. Saiz-Lopez, “Multiphase Modeling of Nitrate Photochemistry in the Quasi-Liquid Layer: Implications for NO_x Release from the Arctic and Coastal Antarctic Snowpack,” 25th Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere (2007), oral presentation.

C. S. Boxe and A. Saiz-Lopez, “Multiphase Modeling of Nitrate Photochemistry in the Quasi-Liquid Layer: Implications for NO_x Release from the Arctic and Coastal Antarctic Snowpack,” 25th Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere (2007), poster presentation.

A. Saiz-Lopez and C. S. Boxe, "Iodine in the Troposphere," 25th Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere (2007), oral presentation.

A. Saiz-Lopez and C. S. Boxe, "Iodine in the Troposphere," 25th Informal Symposium on Kinetics and Photochemical Processes in the Atmosphere (2007), poster presentation.

A. Saiz-Lopez and C. S. Boxe, "Iodine: The Missing Halogen of Polar Tropospheric Chemistry," American Geophysical Union, San Francisco, California, Fall Meeting 2007, invited oral presentation.

C. S. Boxe and A. Saiz-Lopez, "Multiphase Modeling of Nitrate Photochemistry in the Quasi-Liquid Layer: Implications for NO_x Release from the Arctic and Coastal Antarctic Snowpack," American Geophysical Union, San Francisco, California, Fall Meeting 2007, oral presentation.

C. S. Boxe, "Surface Chemistry and Physics: Implications for the future of Terrestrial Polar Science and Planetary Science," University of Florida, Department of Chemistry, Physical Chemistry Seminar Series, December 4th, 2007.

C. S. Boxe, "Surface Chemistry and Physics: Implications for the future of Terrestrial Polar Science and Planetary Science," Colorado State University, Atmospheric Science Department Colloquium, November 29th, 2007.

C. S. Boxe, "Surface Chemistry and Physics: Implications for the future of Terrestrial Polar Science and Planetary Science," Columbia University-Lamont Doherty Earth Observatory Seminar Series, October 26th, 2007.

C. S. Boxe, "Surface Chemistry and Physics: Implications for the future of Terrestrial Polar Science and Planetary Science," Columbia University's Earth's Institute's IGERT Joint Program in Applied Mathematics and Earth and Environmental Sciences Fall 2007 Colloquium, October 25th, 2007.

A. Saiz-Lopez and C. S. Boxe, "Surface Chemistry and Physics: Implications for the future of Terrestrial Polar Science and Planetary Science," Earth and Space Science Division, Jet Propulsion Laboratory, NASA September 17th, 2007.

C. S. Boxe and A. Saiz-Lopez, "Multiphase Modeling of Nitrate Photochemistry in the Quasi-Liquid Layer (QLL): implications for NO_x release around coastal Antarctica," Gordon Research Conference on Atmospheric Chemistry, Big Sky, Montana, August 26th – 31st, 2007.

A. Saiz-Lopez and C. S. Boxe, "Iodine Explosion during Antarctic Springtime," Earth and Space Science Division, Jet Propulsion Laboratory, NASA-JPL's Postdoctoral Research Day, August 28th, 2007.

A. Saiz-Lopez and C. S. Boxe, "Iodine explosion during Antarctic springtime," Gordon Research Conference on Atmospheric Chemistry, Big Sky, Montana, August 26th – 31st, 2007.

C. S. Boxe, "Life Journey of a Young Scientist," NASA's Jet Propulsion Laboratory, Arctica Research Alliance -- Summer Campers from MacArthur Park, Pasadena, CA, July 31st, 2007.

A. Saiz-Lopez and C. S. Boxe, "Iodine explosion during Antarctic springtime," NASA's Jet Propulsion Laboratory, Planetary Ices Seminar Series, Pasadena, CA, July 13th, 2007.

A. Saiz-Lopez and C. S. Boxe, "Multiphase Modeling of Nitrate Photochemistry in the Quasi-Liquid Layer (QLL): implications for NO_x release around coastal Antarctica," NASA's Jet Propulsion Laboratory, Planetary Ices Seminar Series, Pasadena, CA, July 20th, 2007.

A. Saiz-Lopez and C. S. Boxe, "Iodine explosion during Antarctic springtime," California Institute of Technology, Geological and Planetary Science Division, Pasadena, CA, Yuk L. Yung Seminar Series, June 26th, 2007.

A. Saiz-Lopez and C. S. Boxe, "Multiphase Modeling of Nitrate Photochemistry in the Quasi-Liquid Layer (QLL): implications for NO_x release around coastal Antarctica," California Institute of Technology, Geological and Planetary Science Division, Pasadena, CA, Yuk L. Yung Seminar Series, June 26th, 2007.

C. S. Boxe, Volunteer at the Child Educational Center's 18th Annual Wine Tasting Benefit and Auction, Avery House, Caltech, June 16th, 2007.

A. Saiz-Lopez and C. S. Boxe, "Iodine explosion during Antarctic springtime," Minority Education Initiative Summer Internship Program, Jet Propulsion Laboratory, NASA, June 13th, 2007.

A. Saiz-Lopez and C. S. Boxe, Earth and Space Science Division, Jet Propulsion Laboratory, NASA "Biologically-Induced Iodine (I₂) Release from Sea-Ice During Springtime in Antarctica," The Discipline Program Scientist Monthly Planetary Science Highlight, May 18th, 2007.

C. S. Boxe, "Careers in Earth Science," Keynote Speaker at Earth Science Career Day, Citrus College, Glenora, CA April 19nd, 2007.

C. S. Boxe, "Fostering Your Scientific Curiosity," Keynote Speaker at Earth Science Career Night for High School Students at JPL, April 5th, 2007.

C. S. Boxe, FOCUS Fellow, FOCUS 2007, Georgia Institute of Technology, January 11th – 14th, 2007.

C. S. Boxe, "Grain Sizes, Surface Areas, and Porosities of Vapor-Deposited H₂O Ices Used in the Temperature Range 83.5 – 261 K: Simulation of Surfaces of Planetary Icy Surfaces," American Geophysical Union, San Francisco, California, Fall Meeting 2006, poster presentation.

G. E. Orzechowska, R. P. Hodyss, P. V. Johnson, J. D. Goguen, A. L. Lane, C. S. Boxe, J. Kirschvink Y. L. Yung, and I. Kanik, "Potential for Organic Chemical Evolution on Enceladus," American Geophysical Union, San Francisco, California, Fall Meeting 2006, poster presentation.

W. D. Smythe, M. T. Leu, C. S. Boxe, B. R. Bodsgard, "Energy Transport and Crystal Growth in Frost Flowers," American Geophysical Union, San Francisco, California, Fall Meeting 2006, poster presentation.

C. S. Boxe, "A Multi-Component View of Ice/Snow: Implications of its pH for the Overlying Boundary Layer/Planetary Science Heterogeneous Chemistry," University of New Hampshire, Institute for the Study of Earth, Oceans, and Space, Science Seminar Series, November 16th, 2006.

C. S. Boxe, "A Journey from Terrestrial Photochemistry and Kinetics to Planetary Science Microphysics," Georgia Institute of Technology, School of Earth and Atmospheric Sciences, Atlanta, GA, School of Earth and Atmospheric Sciences Seminar Series, September 29th, 2006.

C. S. Boxe, "Grain Sizes, Surface Areas, and Porosities of Vapor-Deposited H₂O Ices Used in the Temperature Range 83.5 – 261 K: Simulation of Surfaces of Icy Satellites and Terrestrial Snow-Covered Regions," California Institute of Technology, Geological and Planetary Science Division, Pasadena, CA, Yuk L. Yung Seminar Series, September 26th, 2006.

C. S. Boxe, A. J. Colussi, M. R. Hoffmann, I. M. Perez, J. G. Murphy, R. C. Cohen, "Kinetics of NO and NO₂ Evolution from Illuminated Frozen Nitrate Solutions," 232nd American Chemical Society National Meeting & Exposition, September 10-14th, 2006 San Francisco, CA.

C. S. Boxe, "Global Warming: Fact, Hypothesis, or Myth?," NASA's Jet Propulsion Laboratory, Pasadena, California, SURF, MURF, Space Grant, USRP, PGGURP, and CURE summer seminar series, June 21st, 2006.

C. S. Boxe, Volunteer at the Child Educational Center's 17th Annual Wine Tasting Benefit and Auction, Avery House, Caltech, June 17th, 2006.

C. S. Boxe, "Nitrate Photochemistry and Interrelated Chemical Phenomena in Ice/ Grain Sizes and Surface Areas of H₂O Ices Used to Simulate Surfaces of Icy Moons and Terrestrial Ice/Snow-Covered Regions," Michigan Technological University, Environmental Science and Engineering and Geological/Mining Engineering and Sciences Departments, May 11th, 2006.

C. S. Boxe, "Nitrate Photochemistry and Interrelated Chemical Phenomena in Ice/ Grain Sizes and Surface Areas of H₂O Ices Used to Simulate Surfaces of Icy Moons and Terrestrial Ice/Snow-Covered Regions," Massachusetts Institute of Technology, Civil and Environmental Engineering Department, April 18th, 2005.

C. S. Boxe, "Nitrate Photochemistry and Interrelated Chemical Phenomena in Ice/ Grain Sizes and Surface Areas of H₂O Ices Used to Simulate Surfaces of Icy Moons and Terrestrial Ice/Snow-Covered Regions," Reed College, Portland, Oregon, Chemistry Department, April 10th, 2006.

C. Robinson, C. S. Boxe, M. I. Guzman, A. J. Colussi, and M. R. Hoffmann, "¹⁹F NMR Probing the Acidity of Frozen Electrolyte Solutions," NSF CMS/BES (Civil and Mechanical Systems/Bioengineering and Environmental Systems) Workshop for the Advancement and Retention of Underrepresented & Minority Engineering Educators (WEE '06), Washington, DC, March 5th-8th, 2006.

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Honors, Awards, and Proposal (Pending and Received) Funding

NASA Global Climate Change Education Proposal	Pending
ExoMars Trace Gas Orbiter Instruments Investigations Proposal	Pending
NASA Air Quality Science Team Proposal	Pending
NSF Presidential Award in Science, Math, and Engineering	Pending
Nominated for NSF Presidential Award in Science, Math, and Engineering	2010
2010 Research and Technology Development Innovative Spontaneous Concept	\$30,000
JPL Early Career Hire	Oct. 2008 – Oct. 2009
JPL Postdoctoral Scholar	Jan. 2008 – Oct. 2008
ORAU-NASA-JPL Postdoctoral Scholar	Jan. 2006 – Jan. 2008
Most Intellectual Poster at JPL Postdoctoral Research Day	August 28 th , 2007
Carl Storm Underrepresented Minority Fellowship	August 2007
Atmospheric Chemistry Gordon Research Conference Attendee	Aug. 26 th – Aug. 31 st 2007
FOCUS Fellow, GA Tech FOCUS 2007	Jan. 11 th – 14 th , 2007
Faces of JPL	May 2007 – Present
NSF CMS/BES (WEE '06) Scholar	Mar. 5 th – 8 th , 2006
SOLAS Summer School Scholar	Aug. 29 th – Sept. 10 th 2005
Gordon and Betty Moore Fellow, California Institute of Technology	2003 – 2005
James Irvine Fellow, California Institute of Technology	1999 – 2003
Chemistry Honors, Morehouse College	May 1999

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